Funding Trends and Support of Core Values

NIDDK's core values emphasize maintaining a strong investigator initiated R01 program, preserving a stable pool of talented new investigators, supporting key clinical studies and trials, and continuing strong support of training and career development programs, consistent with the vision of NIDDK Director, Dr. Griffin P. Rodgers (see Director's Message).

At NIDDK's May 2012 Advisory Council meeting, NIDDK's Deputy Director, Dr. Gregory Germino, highlighted these values and reviewed NIDDK's resource focus on areas supporting the core values.

Following that presentation, NIDDK generated additional data on application and funding trends to help our research community understand application and funding dynamics over recent years and demonstrate NIDDK's commitment to research and programs associated with NIDDK's core values and posted these data on the NIDDK website (*www.niddk.nih.gov*, in the "Funded Grants and Grant History" section). The data on the following pages were more recently updated to show trends through Fiscal Year 2013. NIDDK will continue to update these charts as new data become available.

THE NIDDK FUNDING OUTCOMES FOR FISCAL YEAR (FY) 2013 AND HISTORICAL APPLICATION AND FUNDING TRENDS

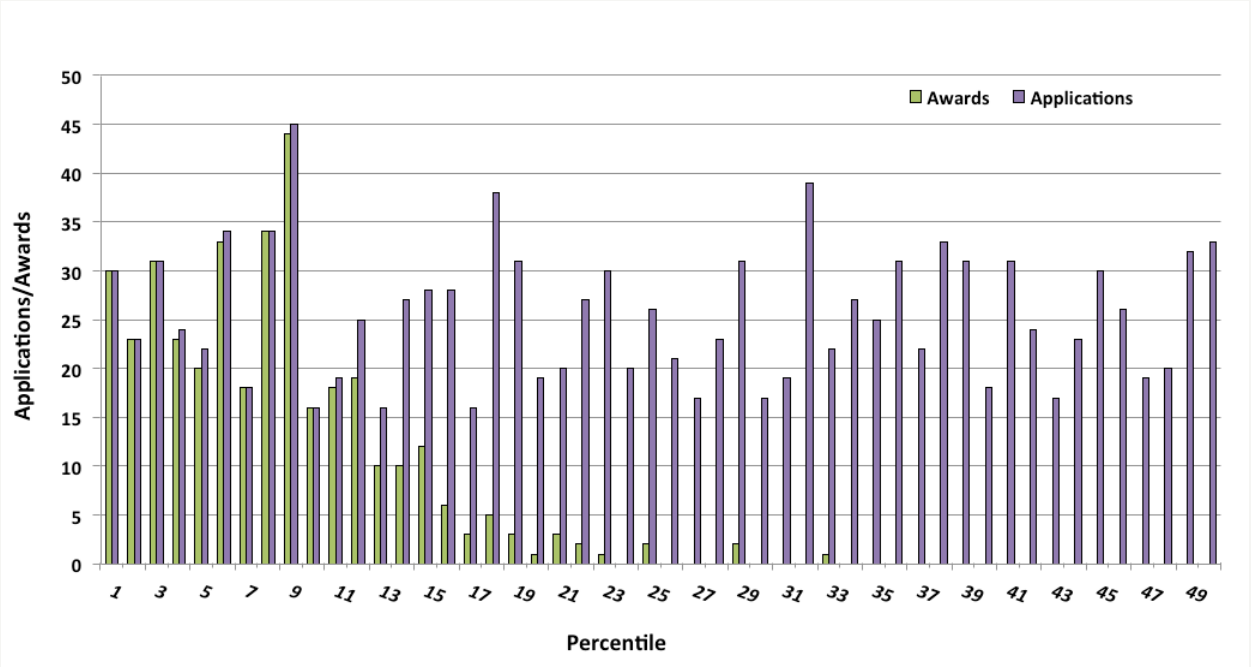
The data in all charts exclude initiatives (*i.e.*, RFAs), grants funded using the type 1 diabetes special appropriation and funds appropriated through the American Recovery and Reinvestment Act (ARRA).

GRANT ACTIVITIES

Code	Title	Code	Title
K01	Research Scientist Development Award Research and Training	R13	Conference
K08	Clinical Investigator Award (CIA)	R15	Academic Research Enhancement Award (AREA)
K23	Mentored Patient-oriented Research Career Development Award	R18	Research Demonstration and Dissemination Project
K24	Midcareer Investigator Award in Patient-oriented Research	R21	Exploratory/Developmental Grant
K25	Mentored Quantitative Research Career Development Award	R24	Resource-related Research Project
K99	Career Transition Award	R34	Planning Grant
P01	Research Program Project	R37	Method to Extend Research in Time (MERIT) Award
R00	Research Transition Award	SBIR/STTR	Small Business Innovation Research Grant/ Small Business Technology Transfer Grant
R01	Research Project	T32	Institutional National Research Service Award
R03	Small Research Grant		

FIGURE 1

FIGURE 1: NUMBER OF NIDDK COMPETING R01 APPLICATIONS SCORING WITHIN THE TOP 50TH PERCENTILE AND NUMBER OF NIDDK COMPETING R01 APPLICATIONS FUNDED IN FY 2013

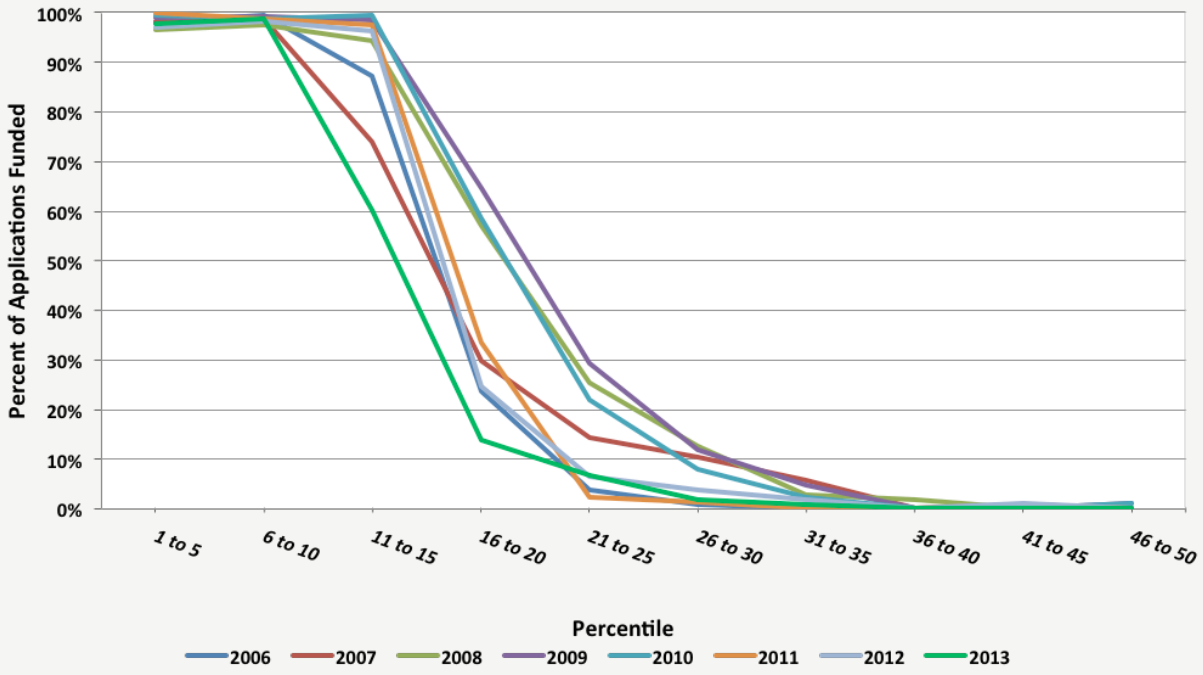


"Applications" shown in the chart above include all applications that scored 50th percentile or better. Unscored applications, scored applications with no percentiles, and applications scoring above the 50th percentile are not shown (45 percent [n=1,064] of the applications received were unscored or scored above the 50th percentile). No unscored applications were funded in FY 2013.

The NIDDK nominal payline in FY 2013 was the 11th percentile for established investigators and the 16th percentile for Early Stage New Investigators. These data show that NIDDK closely adheres to its payline, but does exercise some programmatic discretion to reach for a limited number of especially innovative or programmatically important applications.

FIGURE 2

FIGURE 2: NIDDK COMPETING R01 APPLICATION FUNDING CURVES FOR FY 2006-2013



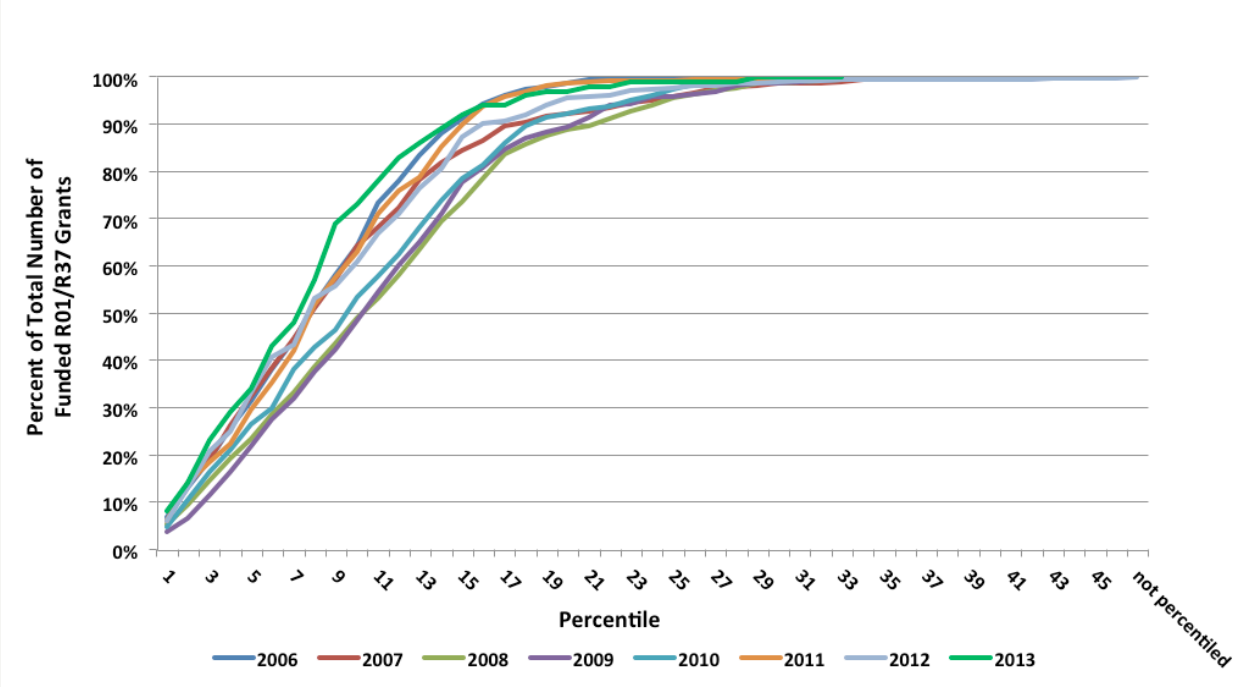
To generate the data for Figure 2, applications were placed into "percentile bins" as follows: Bin 1-5 includes all applications with percentile scores from 0.1 to 5.0, Bin 6-10 includes applications with percentile scores from 5.1 to 10.0, *etc*. Only applications that scored 50th percentile or better were included in the analysis.

The data demonstrate steep deflections in the percentage of applications funded at the nominal payline for each year. Paylines for the years included in Figure 2 are shown in the table to the right.

Fiscal Year	General Payline	New Investigator*/ Early Stage Investigator** Payline
2006	14	16*
2007	13	15*
2008	17	19*
2009	17	19*
2010	17	19*
2011	15	17*
2012	13	18**
2013	11	16**

FIGURE 3

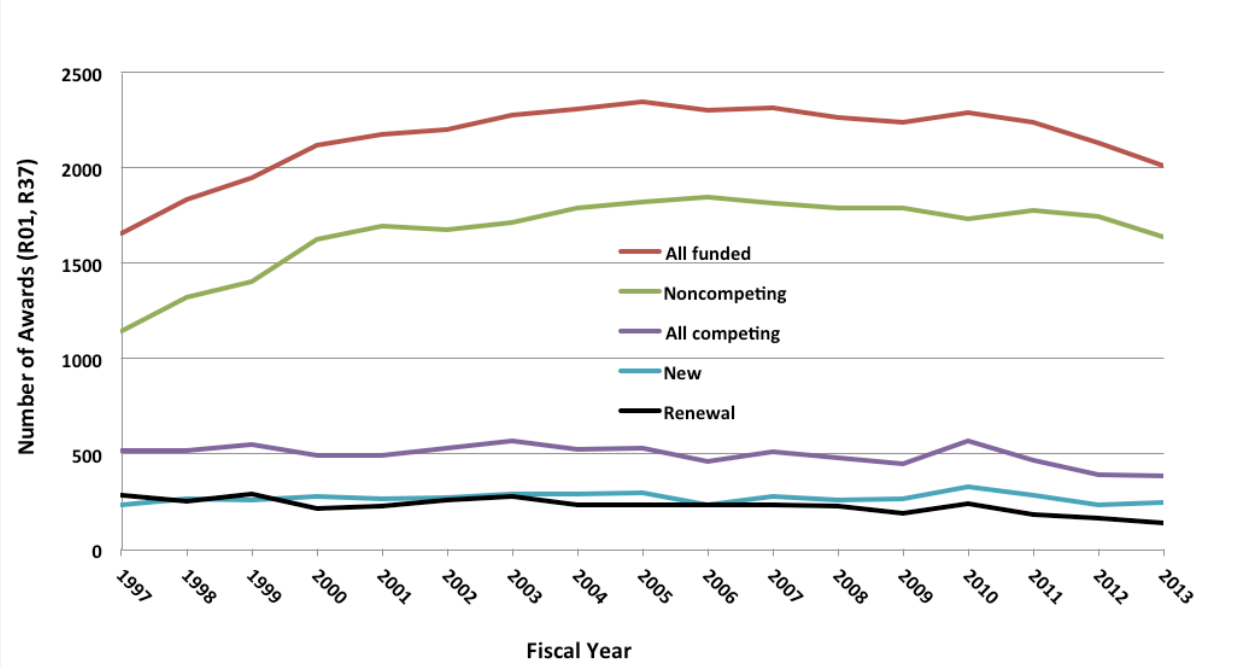
FIGURE 3: CUMULATIVE PERCENTAGE OF R01 AWARDS ACROSS PERCENTILES IN FY 2006-2013



Only funded applications are considered in the data set charted in Figure 3. Percentile bin size equals one percentile and there is no overlap between bins. Percentiles with decimal places were summed into the next highest integral percentile as follows: 0.1-0.9 was summed into 1, 1.1-1.9 was summed into 2, *etc*. These cumulative funding data again demonstrate that the vast majority of applications funded by NIDDK fall within the payline, but that NIDDK does exercise some programmatic discretion to reach for a limited number of especially innovative or programmatically important applications.

FIGURE 4

FIGURE 4: NUMBER OF NIDDK R01 AND R37 GRANTS (COMPETING AND NON-COMPETING) FUNDED IN FY 1997-2013



Overall, the total number of R01 grants funded by NIDDK has increased 22 percent since 1997. The major portion of this increase occurred during the years of the NIH budget doubling (1998-2003). Since FY 2005 there has been a decline in the number of grants funded. In general about half of the competing grants funded by NIDDK are new (Type 1) awards and half are competing renewals. However, in the past five years competing renewal awards have lagged behind new awards.

FIGURE 5

FIGURE 5: NUMBER OF COMPETING NIDDK R01 APPLICATIONS (INCLUDING REVISIONS) RECEIVED FOR FUNDING CONSIDERATION IN FY 1998-2013

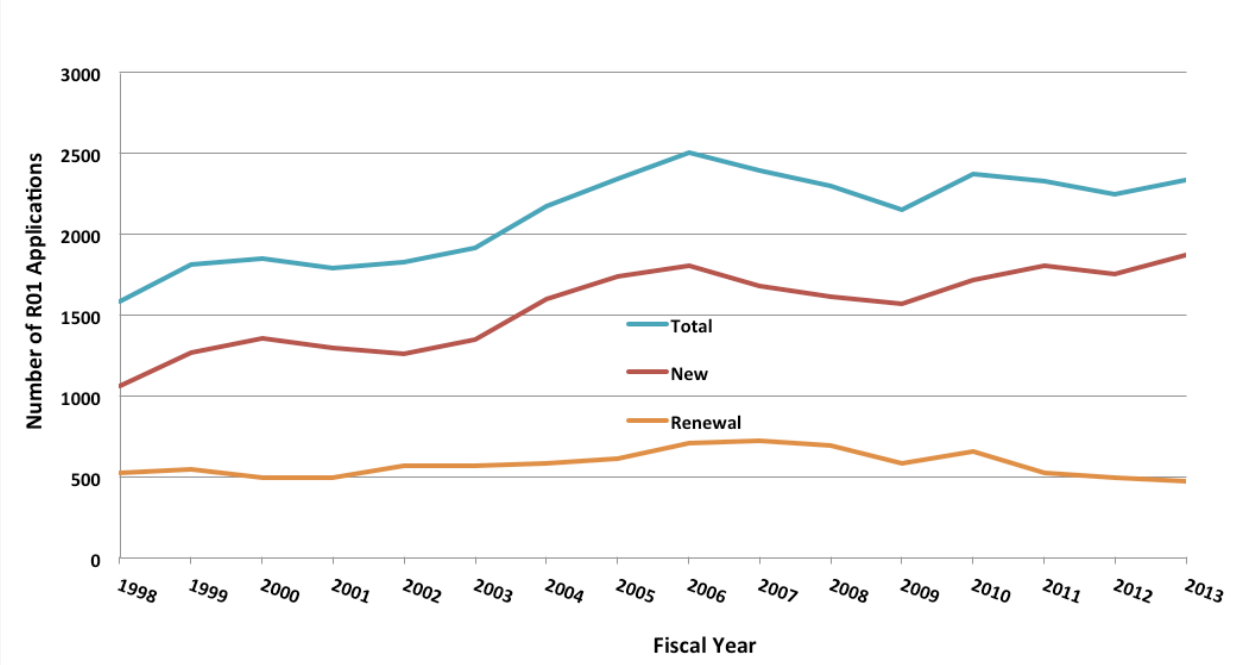


Figure 5 shows a substantial increase in the number of competing R01 applications received by NIDDK between FY 1998 and 2006. However, the numbers of competing applications have declined slightly since 2006. Much of the observed increase between 1998 and 2006 was primarily due to new (Type 1) applications. Submission rates for competing renewal applications fluctuated somewhat between 1998 and 2013, but since FY 2007 numbers of renewal applications have waned.

FIGURE 6

FIGURE 6: OVERALL NIDDK EXPENDITURES (INCLUDES DIRECT AND INDIRECT COSTS) ON R01 AWARDS (COMPETING AND NON-COMPETING) IN FY 1995-2013

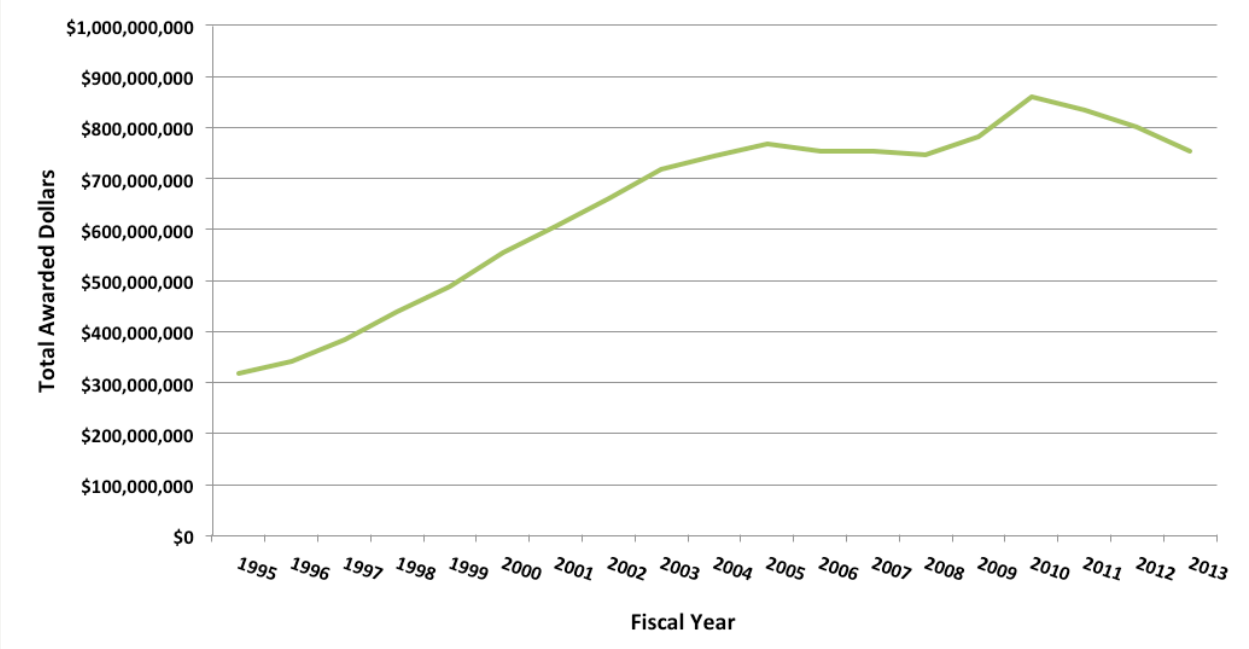


Figure 6 shows that NIDDK expenditures on R01 grants have increased markedly (137 percent) since 1995. This is because NIDDK is funding a larger number of these awards (Figure 4) and also because the median cost of an R01 has increased substantially (Figure 7).

FIGURE 7

FIGURE 7: MEDIAN TOTAL COSTS (INCLUDES DIRECT AND INDIRECT COSTS) OF NIDDK R01 GRANTS (COMPETING AND NON-COMPETING) IN FY 1995-2013

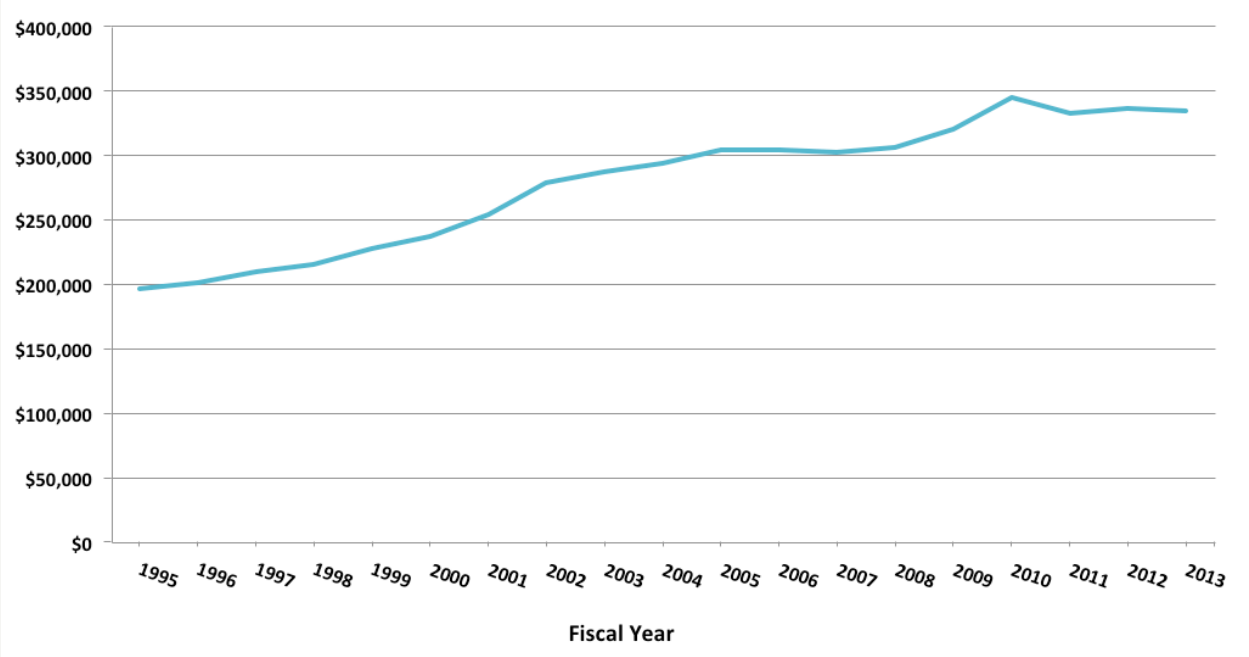
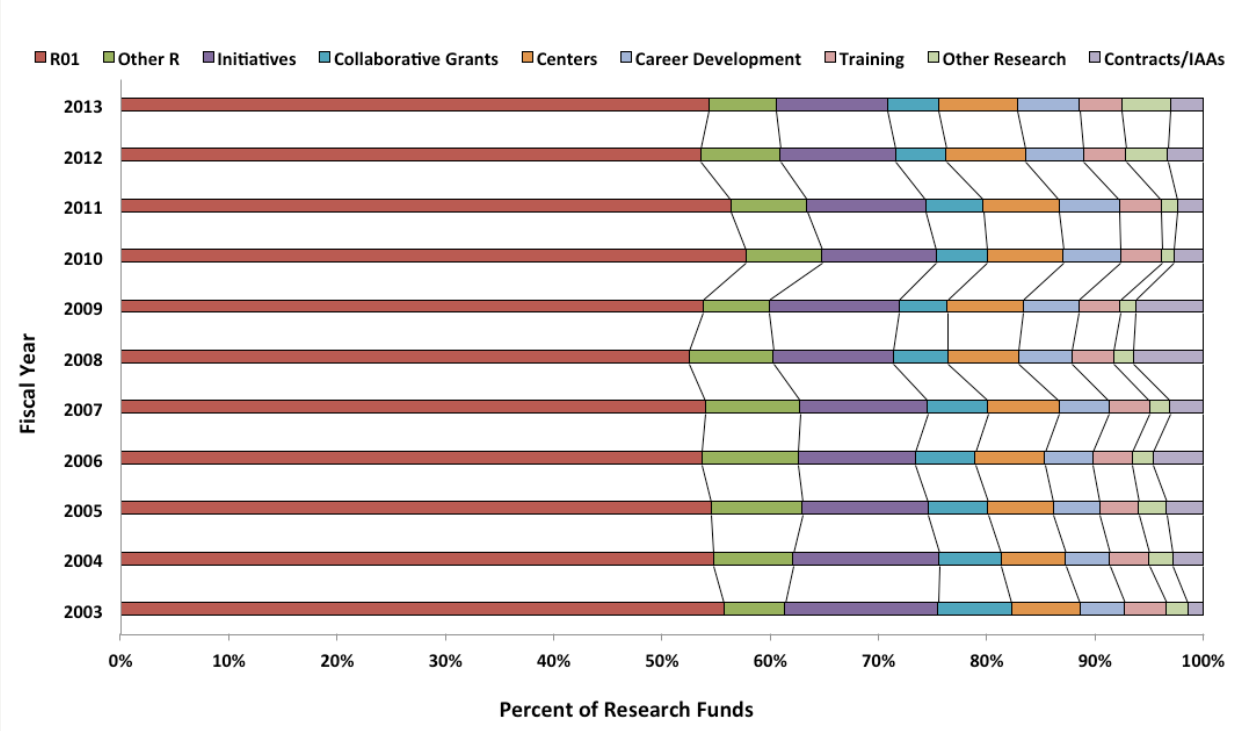


Figure 7 illustrates that the median cost of R01 awards has increased approximately 73 percent since 1995, although costs have been relatively flat since 2011. In the past 10 years (2004-2013) the number of grants receiving $500,000 or more in total costs has gone from five percent of the total number of awards to 13 percent of the total awarded R01s. The number of grants receiving $250,000 or less in total costs has declined from 25 percent of the total awards to 10 percent.

FIGURE 8

FIGURE 8: NIDDK EXTRAMURAL RESEARCH FUNDING BY CATEGORY (COMPETING AND NON-COMPETING)



NIDDK PORTFOLIO CATEGORIES:

- **R01:** Investigator initiated (excludes NIDDK RFAs)
- **Other R:** Includes other R activities (*i.e.*, R03, R13, R15, R18, R21, R34, SBIR/STTR, *etc*.) but excludes applications submitted to NIDDK RFAs and R24s
- **Initiatives:** Awards made in response to NIDDK RFAs; includes most NIDDK large clinical trials and consortia
- **Collaborative Grants:** P01s and R24s that are not "mini-Centers"
- **Centers:** Includes all non-P01 P awards and R24 "mini-Centers"
- **Career Development:** Includes all Ks (including K99/R00)
- **Training:** Includes all F and T activities
- **Other Research:** Everything not captured in the categories above
- **Contracts and Interagency Agreements (IAAs):** Includes some large clinical studies

Figure 8 shows that relative funding levels of most NIDDK extramural research categories have remained fairly stable since FY 2003. These data were presented to NIDDK's Advisory Council in May 2012 in the context of NIDDK's core values. The NIDDK core values emphasize maintaining a strong investigator initiated R01 program, preserving a stable pool of talented new investigators, supporting key clinical studies and trials (support is generally represented in the Initiatives and Contracts categories), and continuing strong support of training and career development programs. Figures 9-12 illustrate other examples of how NIDDK's portfolio has reflected NIDDK core values over time.

FIGURE 9

FIGURE 9: PRESERVING A STABLE POOL OF NIDDK INVESTIGATORS: NUMBER OF INVESTIGATORS SUPPORTED BY AT LEAST ONE R01

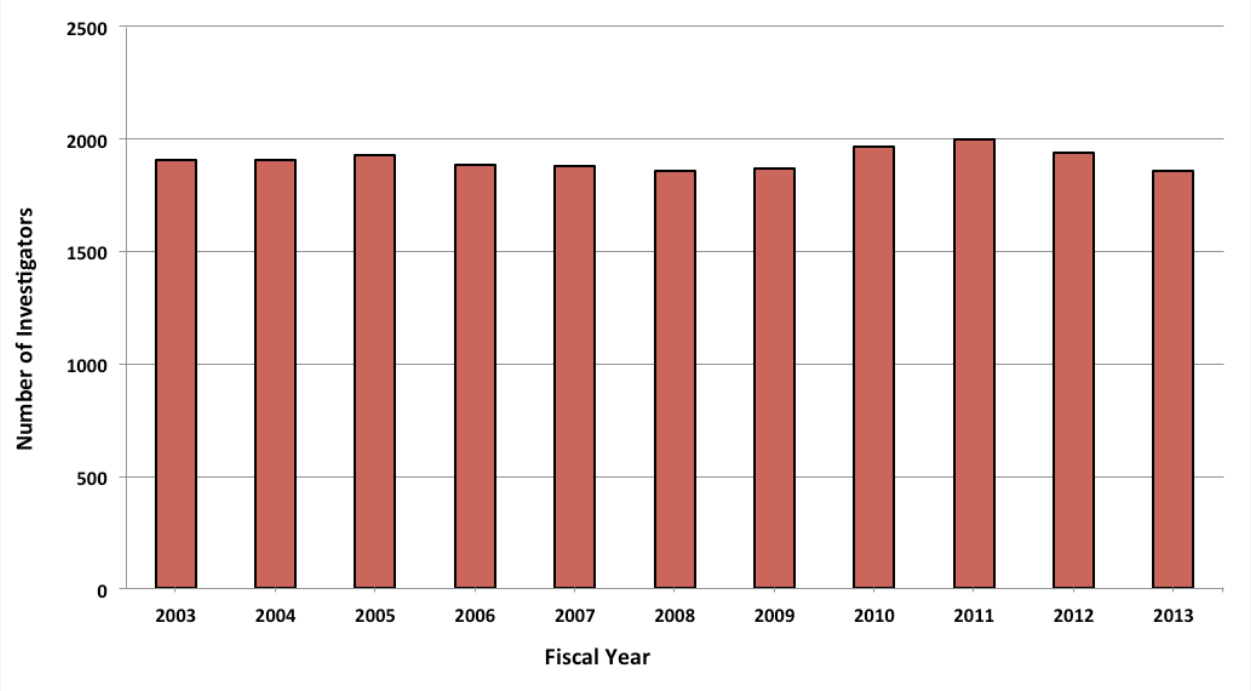


Figure 9 shows that the number of Principal Investigators (PIs) supported by at least one R01 remained relatively stable between Fiscal Year 2003 and 2009. In FYs 2010 and 2011 there were increases in the numbers of PIs supported with an NIDDK R01. It should be noted that in 2008 NIH, for the first time, began making multiple principal investigator R01 awards to support team science projects. The observed increases in numbers of PIs supported by NIDDK in FY 2010 and 2011 are largely attributable to multiple principal investigator R01 awards. The subsequent declines in 2012 and 2013 are likely due in large part because of lower paylines and inflationary pressures in the context of flat or declining budgets.

FIGURE 10

FIGURE 10: PRESERVING A STABLE POOL OF NEW INVESTIGATORS: NUMBER OF NIDDK NEW INVESTIGATOR R01 APPLICATIONS AND AWARDS

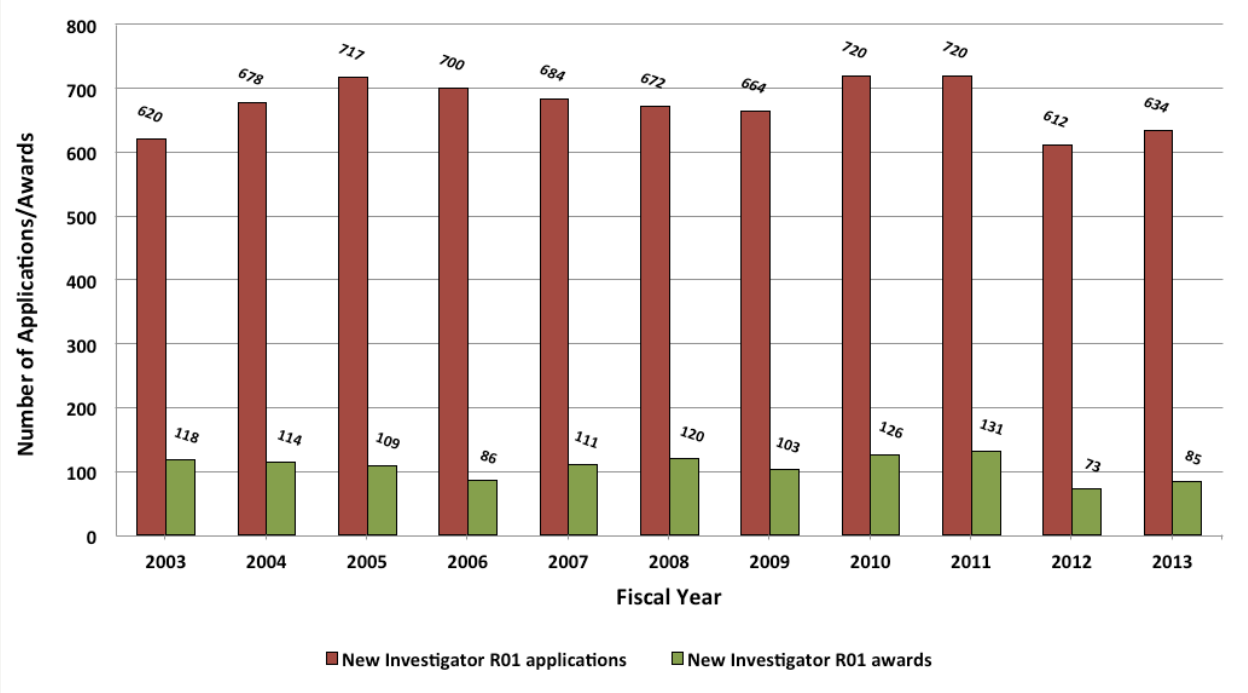
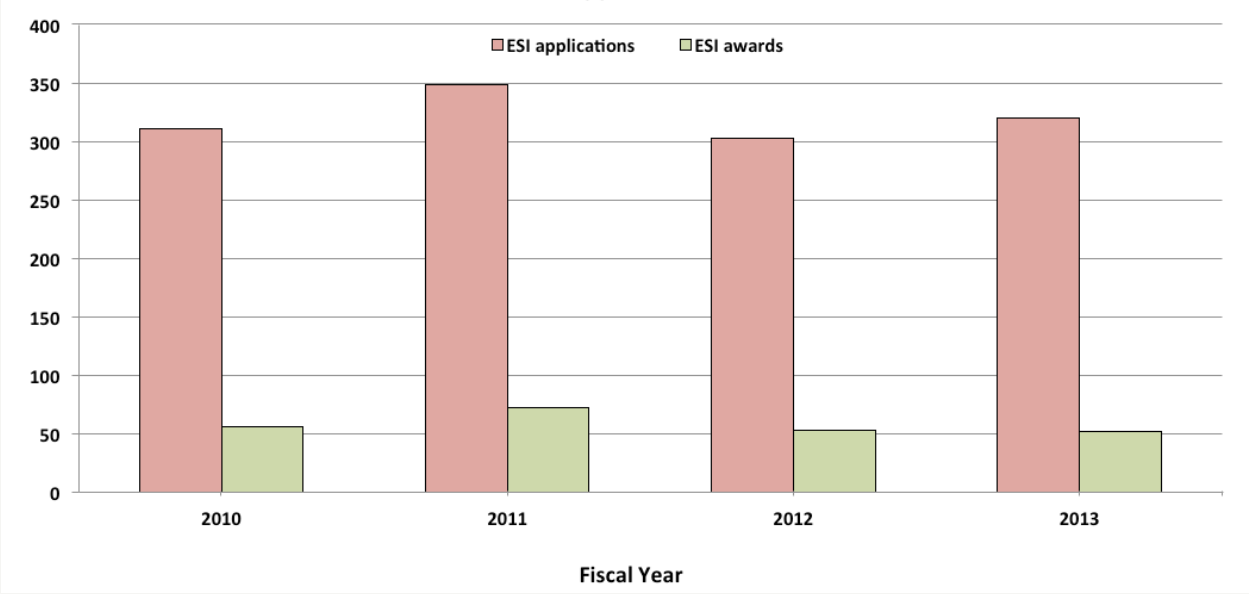


Figure 10 shows that while application rates for New Investigators have remained fairly high, there was a deceleration in the number of New Investigator awards between FY 2003 and 2006. Starting in FY 2007, NIH and NIDDK established new policies focused on New Investigators and these policies appear generally effective in mitigating downward pressures on New Investigator awards. There was, however, a sharp decrease in New Investigator applications and awards in FY 2012 with only a partial rebound in FY2013. This is a concern and NIDDK continues to carefully monitor the situation. It should be noted that in Fiscal Year 2012 NIH and NIDDK began focusing on Early Stage Investigators (ESIs), which is a subset of New Investigators (see Figures 2, 11, and 12). Counts in Figure 10 are applications and awards, not persons.

FIGURE 11

FIGURE 11: PRESERVING A STABLE POOL OF NEW INVESTIGATORS: NUMBER OF NIDDK EARLY STAGE INVESTIGATOR (ESI) R01 APPLICATIONS AND AWARDS



Comparison of Figures 10 and 11 shows that while the subset of ESI applications fell in Fiscal Year 2012 essentially in proportion to the total drop in New Investigator applications, the proportional drop in number of awards to ESIs was not as great. This is attributable in part to NIDDK's differential payline for ESI applications. The number of ESI awards in FY 2013 was essentially flat compared with the number of ESI awards in FY 2012.

FIGURE 12

FIGURE 12: PRESERVING A STABLE POOL OF NEW INVESTIGATORS: PERCENT OF NEW INVESTIGATOR APPLICATIONS AND AWARDS THAT ARE ESI

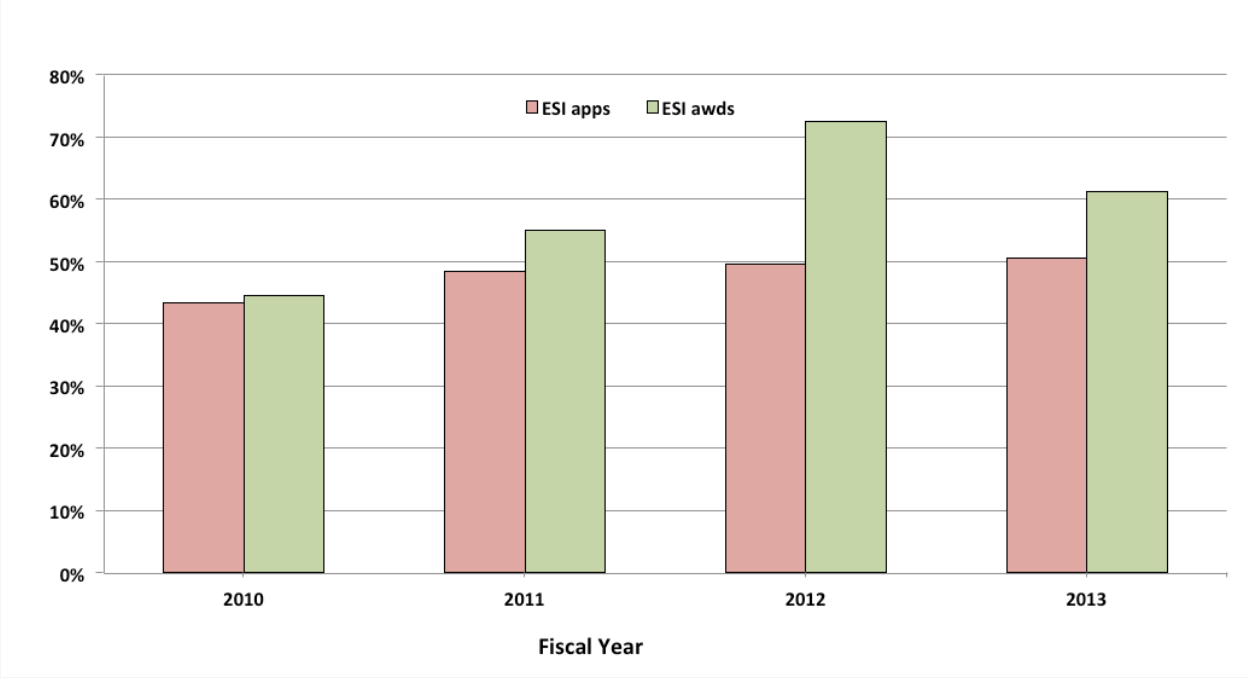


Figure 12 shows that NIDDK's differential payline for ESIs in FY 2013 was effective in continuing to enhance ESI representation among New Investigator awards.

FIGURE 13

FIGURE 13: SUPPORT PIVOTAL CLINICAL STUDIES AND TRIALS: NIDDK HUMAN SUBJECTS RESEARCH FUNDING AS A PROPORTION OF ALL EXTRAMURAL RESEARCH FUNDING

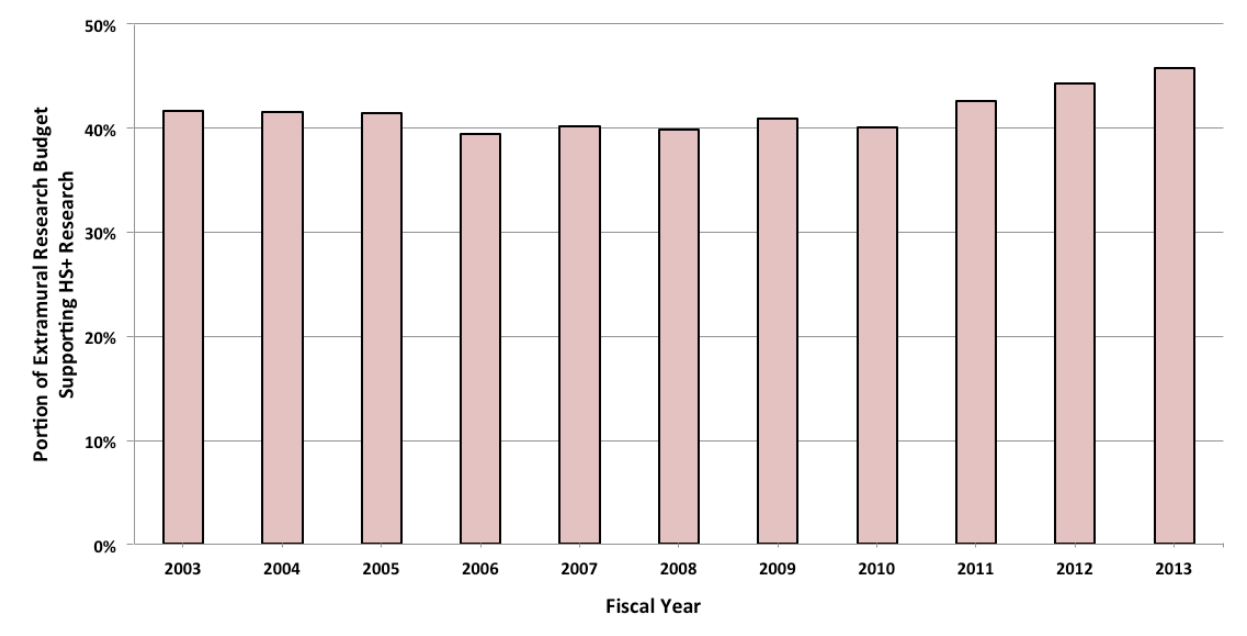


Figure 13 demonstrates that the NIDDK commits a substantial proportion of its research funding to the support of clinical research involving human subjects. For the purpose of this analysis, we used the definition described in Kotchen et al, *JAMA* 2004 Feb; 291(7):836-43 and included all studies coded as using Human Subjects (HS+).

FIGURE 14 (A TO D)

NIDDK IS COMMITTED TO TRAINING THE NEXT GENERATION

Figures 14 A to D demonstrate that NIDDK's commitment to training and developing the careers of the next generation of scientists remains strong. Figure 14 A shows that overall support of training and career development programs has increased since 2003 and that the slight deceleration of T awards support was offset by an increase in support of F awards (by design). Figures 14 B and D illustrate that the numbers of NIDDK T awards and associated training slots have remained relatively stable. Figure 14 C shows that while the numbers of NIDDK K08 (Mentored Clinical Scientist Development Award) awards decreased between 2003 and 2013, the numbers of K01 (Mentored Research Scientist Development Award) and K23 (Mentored Patient-Oriented Research Career Development Award) have increased. NIDDK will continue to monitor carefully its training and career development programs to ensure appropriate balance.

*Please note that T32 awards made in FY 2013 continue into FY 2014. The total numbers of T32 slots are reported at the end of the award period. Therefore the FY 2013 information on T32 slots will not be available until later in FY 2014.

FIGURE 14A: NIDDK FELLOWSHIP (F), CAREER DEVELOPMENT (K), AND TRAINING (T) AWARDS AS A PERCENT OF TOTAL RESEARCH FUNDING

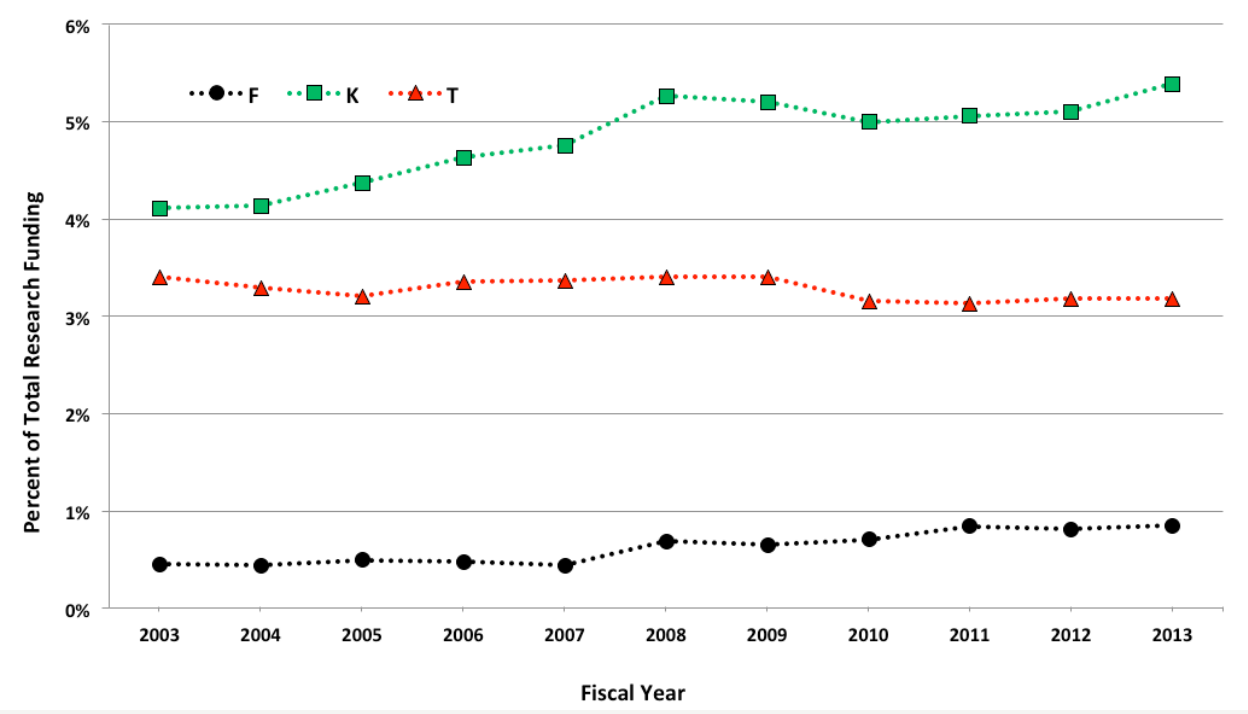


FIGURE 14B: NUMBER OF NIDDK FELLOWSHIP (F), CAREER DEVELOPMENT (K), AND TRAINING (T) AWARDS BY FISCAL YEAR

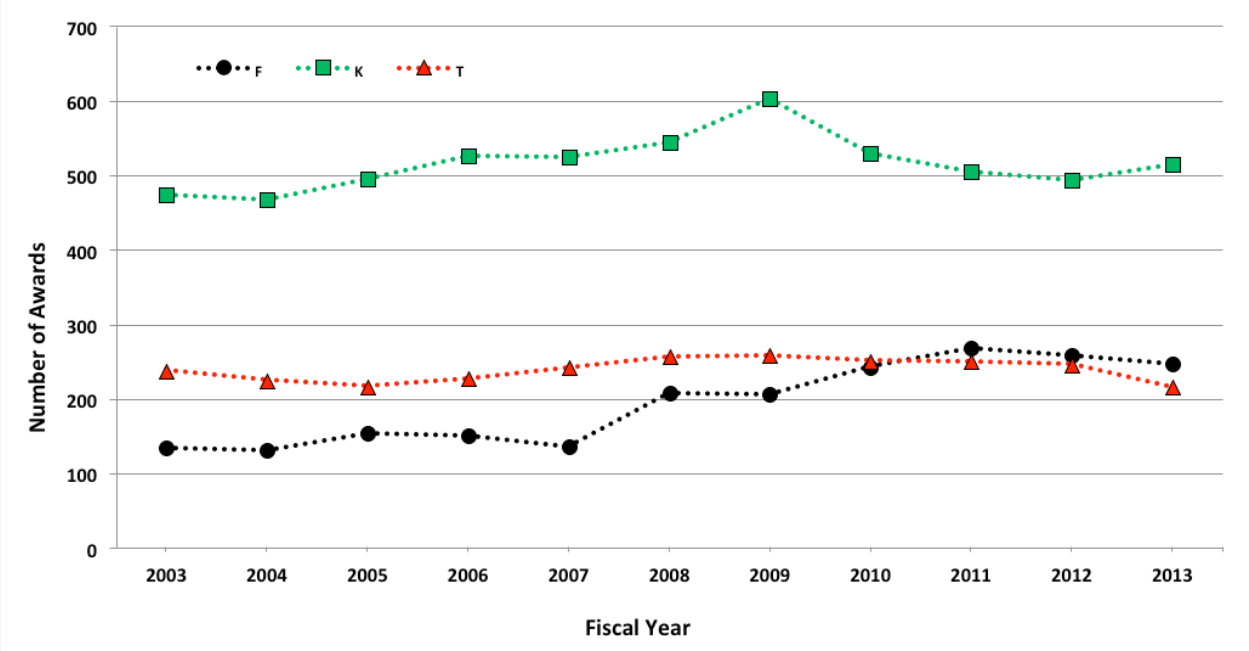


FIGURE 14C: NUMBER OF NIDDK CAREER DEVELOPMENT (K) AWARDS BY ACTIVITY AND FISCAL YEAR

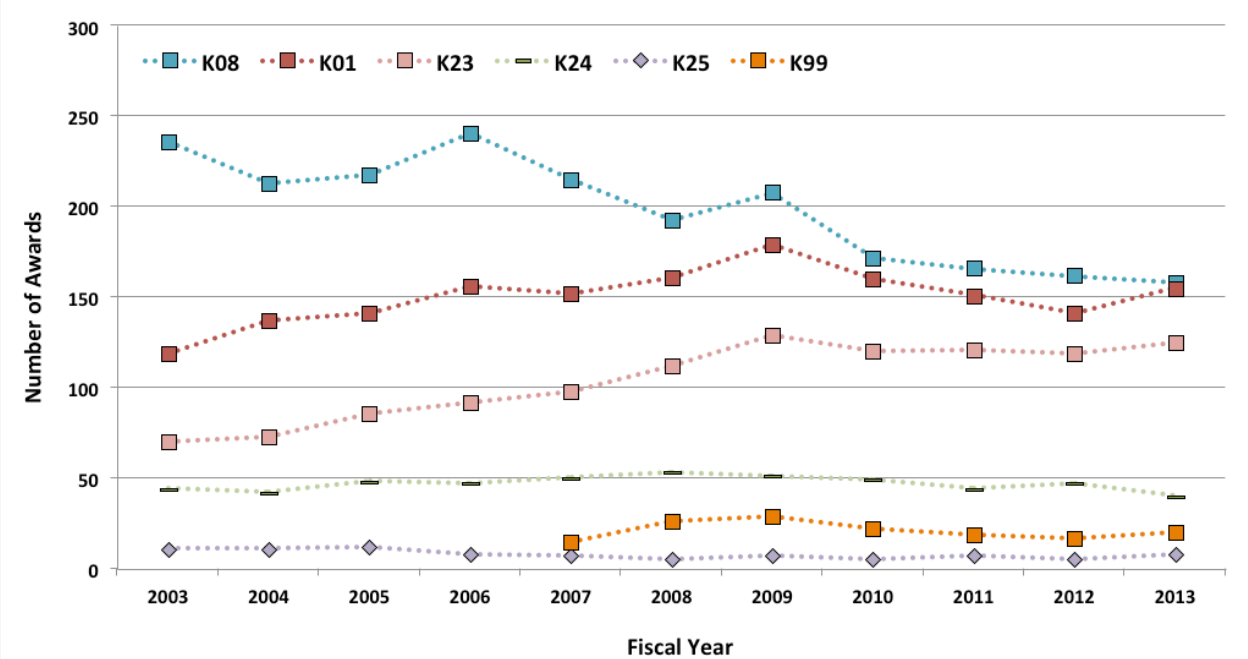


FIGURE 14D: NUMBER OF NIDDK TRAINING (T32) AWARD SLOTS BY FISCAL YEAR